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(54) **TUNABLE VOLTAGE MARGIN ACCESS DIODES**

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(57) **ABSTRACT**

The present invention relates generally to high current density access devices (ADs), and more particularly, to a structure and method of forming tunable voltage margin access diodes in phase change memory (PCM) blocks using layers of copper-containing mixed ionic-electronic conduction (MIEC) materials. Embodiments of the present invention may use layers MIEC material to form an access device that can supply high current-densities and operate reliably while being fabricated at temperatures that are compatible with standard BEOL processing. By varying the deposition technique and amount of MIEC material used, the voltage margin (i.e. the voltage at which the device turns on and the current is above the noise floor) of the access device may be tuned to specific operating conditions of different memory devices.

1 Claim, 4 Drawing Sheets